

NOTES

THE Queen has signified her intention of conferring the honour of Knighthood upon Prof. Frederick Augustus Abel, C.B., F.R.S., in recognition of the valuable services rendered by him to the War Department and to other departments of the Government in his capacity of War Department Chemist.

HER MAJESTY has also been pleased to confer the honour of Knight Commandership of the Bath on the Right Hon. Lyon Playfair, C.B., M.P., F.R.S.

WE are glad to learn that the Hong Kong Observatory scheme, to which we have frequently adverted, has at last become so far a *fait accompli* that Dr. Doberck of the Dunsink Observatory has been appointed astronomer to the new institution by the Secretary for the Colonies. The opportunities afforded for independent and original work in Hong Kong are very great, and we are sure the head of the new Observatory will make the most of them. Dr. Doberck is at present attached to the Kew Observatory, and expects to leave England with his first assistant early in June. Lord Derby is taking a marked interest in the new Observatory, and we are glad to learn is making Dr. Doberck a very liberal allowance for the purchase of instruments.

THE Davis Lectures for 1883 will be given in the lecture room in the Zoological Society's Gardens, in the Regent's Park, on Thursdays, at 5 p.m., commencing June 7, as follows:—June 7, Ungulate Mammals, by Prof. Flower, LL.D., F.R.S.; June 14, Our Snakes and Lizards, by Prof. Mivart, F.R.S.; June 21, The Lamprey and its Kindred, by Prof. Parker, F.R.S.; June 28, Birds and Lighthouses, by J. E. Harting; July 5, The Niger and its Animals, by W. A. Forbes; July 12, South American Birds, by P. L. Sclater, F.R.S.; July 19, The Siberian Tundra, by Henry Seebohm. These lectures will be free to Fellows of the Society and their friends, and to other visitors to the Gardens.

OUR readers will doubtless be surprised to learn that the masterly address on Darwin and Copernicus, of which we publish a translation in another column, has called forth much hostile criticism in Germany. It was read before the members of the Berlin Academy of Sciences, of which Prof. Du Bois Reymond is Secretary, at their last annual meeting. Shortly afterwards one of the Clerico-Conservative newspapers of the German capital called attention to what it was pleased to call the public laudation of one of the worst and most dangerous atheists by a member of a public body supported by the State. Many other papers of the same views immediately followed suit; while the notorious Court Chaplain, Stöcker, whose exploits as a Jew-baiter furnished the Berlin correspondents of the daily papers with a good deal of matter about twelve months ago, preached a long sermon against Prof. Du Bois Reymond and his views. His example was followed by other members of the so-called "Orthodox" clergy in Berlin and the provinces. But the Court Chaplain is also a member of the Prussian Parliament; so not content with crushing "atheism" from the pulpit, he put a question in the House on the subject, supported by Herr Windthorst, one of the leaders of the Ultramontane party. They were answered by Prof. Virchow and the Prussian Minister of Public Instruction, thus causing a whole sitting of the Prussian Landtag to be taken up by a debate on the graceful tribute to the memory of Darwin. That such things should take place in Germany, which has always been considered the home of philosophic freedom, really seems to justify the remark of the author of "Darwin and Copernicus," that freedom of thought, which, after taking its rise in England in the middle of the eighteenth century, passed through France to Germany, where it attained a fuller and more systematic development, seems now to be passing away from the latter country again!

Let us hope that it is coming to our shores once more, as the Professor says it is.

THE Swedish subscription to the Darwin Memorial is now closed. The number of subscribers is 2294, and the amount subscribed 400*l*.

THE *Times* Paris correspondent telegraphs as follows under date April 10:—A shameful trick has been played on the Academy of Sciences. The Königsberg student, Hermann Minkowsky, who with the late Prof. Henry J. S. Smith was declared to have gained the great mathematical prize of 3000 francs, had simply pirated Prof. Smith's communication to the Royal Society in 1868, on the representation of a number as the sum of five squares. He had even copied a slight error in it. The Academy, therefore, at a secret session yesterday annulled its original decision and declared that the whole prize had been gained by the distinguished English professor, who unfortunately has not lived long enough to expose the hoax.

WE would again draw the attention of local scientific societies to the circular which has been issued by the Committee of the British Association appointed to consider certain matters in connection with such societies. These societies will be doing themselves as well as the Committee service by forwarding the information desired without further delay.

THE Scotch Universities Bill, which has been introduced by the Lord Advocate, establishes an Executive Commission, and gives them extensive powers for reorganising the Universities, including the power of revising existing foundations and endowments, and of founding new Professorships. They will also have authority to affiliate Colleges in other parts of the country with the University of St. Andrews; and, if satisfied that that University is no longer able to perform its functions, to dissolve it, and create a new Corporation. The Bill also proposes that a grant of forty thousand pounds a year shall be given to the Scotch Universities from the Consolidated Fund.

THE committee for the organisation of the Congress of Orientalists in Holland has issued a circular letter explaining the reasons for the alteration of the time of meeting of the Congress at Leyden from 1884 to the present year. The last congress, which met at Berlin in 1881, decided that the next should take place at Leyden in 1884; but, the committee say, since then, as it has been arranged that an international colonial exhibition was to be held in Amsterdam this year, it was thought better, after consultation with the previous committee, and after having obtained the sanction of the Netherlands Government, to hold the Oriental Congress at the same time. It is accordingly notified that the Congress will assemble at Leyden from September 10 to 15 of the present year. A small exhibition of literary curiosities, manuscripts, rare books, &c., will be held at the same time. Oriental scholars desirous of being present, or of reading papers, are invited to communicate with Mr. W. Pleyte of Leyden before the end of July, in order that the necessary accommodation may be prepared.

THE *Japan Mail* in announcing recently the death of a student of the Imperial College of Engineering, Mr. Yamada, from overstudy, refers to his docility, untiring assiduity, and very remarkable ability. The writer, who appears to possess intimate knowledge of the subject, speaks thus of Japanese students in general:—"It is hard for those to think ill of Japan who have watched these gentle, earnest-hearted lads, set themselves, almost before they have ceased to be children, with unflagging resolution to accomplish the task their fathers bequeathed to them unattempted, the task of winning for their country the place they hope to see her one day occupy. 'Very fine, forsooth!' we can hear your professional maligner exclaim, 'but after all what

have they done?' Ay, indeed, what have they done! Doubtless they never ask themselves that question. Doubtless they never have to struggle against the paralysing consciousness that the most they can hope to do is to lay a foundation for others to build on, to play the brave part of those silent workers who sow that their successors may reap. That is not much, to be sure, so far at least as visible results are concerned, but it is a work incomparably higher than anything within reach of those cowardly cynics who toil for nothing but to make the world forget that the noblest of English attributes is generosity."

DR. G. W. LEITNER, the explorer and orientalist, is now on his way to England.

A COMPANY has been formed for the construction and working of an electric railway from Charing Cross to Waterloo, a Bill for which was recently obtained. The line will pass under the Thames through iron caissons. The work of construction will commence near the northern end of Northumberland Avenue, opposite the Grand Hotel, and be continued through an arch under that avenue and the Victoria Embankment. Of that arch sixty feet under the Embankment have already been constructed. The railway will pass under the Thames, and again through an arch under College Street and Vine Street, and terminate at Waterloo Station, where it will be directly connected with the platforms of the London and South-Western Railway, with a separate approach from the York Road. The line will be double, and worked by means of a stationary engine at Waterloo, transmitting the power to the carriages, which will run separately, start as filled, and occupy about three and a half minutes in the journey. A tender has been accepted for the construction of the railway, to be ready for opening within eighteen months from the commencement of the work. A contract has also been made with Messrs. Siemens Bros. and Company to provide and erect all requisite electrical machinery, rolling stock, and apparatus not included in the before-mentioned tender.

IN connection with the meeting of the Civil Engineers on Saturday the *Times* makes some very definite statements on the position and function of science in our time, which are worth placing on record as the deliberate opinion of a leading organ of public opinion:—"Meetings such as that of Saturday evening remind us not merely of the services of a particular branch of science to mankind, but of the remarkable determination of human activity to scientific pursuits which is characteristic of the present age. Literature no longer holds the place it once did in the minds of men; nor does it command, as it once did, the services of the most powerful intelligences. The protest against an education wholly or chiefly consisting of the study of the classics is the result of a profound change in the conditions of life. Men have not deliberately and as a result of abstract reasoning discarded one set of studies in favour of another. On the contrary they have discovered, often to their great chagrin, that a complete intellectual displacement has taken place. That which was taken up under protest as a thing too closely connected with utilitarian pursuits to be quite worthy of a man of intellect has now pressed into its service the chief intellectual power of the country. The tide of intellectual effort sets strongly in the direction of science, just as at an earlier period it set in the direction of letters. The teachers and leaders of the day, the real dominant forces of the age, are the men of science, the investigators of natural phenomena, not the thinkers, philosophers, or metaphysicians who formerly gave their names to sects, and made all the world their partisans. Nothing is more remarkable than the profound respect of the scientific conception associated with the name of Darwin, not on science only, but on literature, art, morals, and, in short, upon life. Some will tell us that all this is a lamentable result of the

materialism of the age, but we naturally ask how it happens that some centuries of a non-scientific or literary culture left us a prey to the materialism it is supposed to antidote? It is untrue, moreover, that material interest has been the great impelling force. The great discoveries of science have usually been made by men seeking no material reward, and, as a matter of fact, receiving very little. Science pursues her own way for the most part, and her discoveries are afterwards utilised by men eagerly seeking for the means of material enrichment. Even when it is a question of so practical a thing as a new dye, it will be found that the chemist searching into the properties and combinations of matter, comes upon the secret unawares, while the manufacturer and the dyer reap the profits. It is indeed, only upon these terms that nature yields up her secrets."

THE death is announced at Basle of Dr. Ziegler, who has been long and honourably known for his numerous and remarkable works in cartography. Born at Winterthur in 1801, he began his studies under the direction of Carl Ritter, the creator of modern geography. At a later period of his life he established in his native town the cartographic establishment which is now conducted by Messrs. Wurster and Randegger. From Winterthur he proceeded to Basle, and a few years ago, in testimony of his gratitude for the kindness with which he was received there, he presented to the city of his adoption his magnificent collection of ancient and modern maps. For the conservation and augmentation of this collection a special society has been formed. Dr. Ziegler's most important works are his great map of Switzerland, maps of Glarus, of St. Gall, and of the Engadine, and a hypsometric map of the world. His last work, completed shortly before his death, and now in the press, was a geological atlas and an explanatory description of the geological map of Switzerland.

UNDER the title of "Cacao: How to Grow and how to Cure it," Mr. D. Morris, the Director of the Public Gardens and Plantations in Jamaica, has issued a pamphlet of some 45 pages. It is divided into chapters, the first of which is of an introductory character, and treats of the character of climate and soil of Jamaica, the abolition of slavery and its consequent effects upon the cultivation of the sugar-cane, and the necessity at the present time to plant new economic plants, and a consideration of the prospects of cocoa planting. On this point Mr. Morris says: "I am glad to say that the largest number of the best Trinidad varieties distributed from the Public Gardens during the last five or six years have been intelligently and carefully cultivated on portions of sugar estates which, although unsuitable for canes, are admirably adapted for cacao." Mr. Morris's remaining chapters are devoted to the following considerations: Historical description; cultivation of cocoa; how to start a cacao plantation; planting, pruning, gathering, sweating, curing; yield of cocoa-trees; cost of establishing estates, &c. Under these several heads much interesting and useful information is given, as, for instance, on the original home of the cacao plant, the introduction of cacao or chocolate into England, its consumption in Europe and Great Britain. As a guide to planters or those intending to introduce cacao as a crop, the succeeding chapters will be of much value. The little book is both readable and useful, and can be obtained in this country of Messrs. S. W. Silver and Co.

ALTHOUGH the Chinese Educational Mission has been recalled from the United States before its work was done, through some fancy, we believe, that the young men composing it were becoming too republican in their ideas, yet the results have been in many respects gratifying to those who desire to see Western knowledge spread in China. The youths have been drafted to telegraph stations, arsenals, and elsewhere, and we observe that the secretary and interpreter, Mr. Kwong ki Chin, who recently

published a bulky volume of English phrases, is now preparing a series of schoolbooks for use in Chinese government schools. An English reading-book for beginners, an elementary geography, a series of conversation books, and a manual of English correspondence have either been already published, or will shortly appear. Among many other indications of the steady, though slow, advance of the Chinese in this direction, the Peking correspondent of the *North China Herald* refers with regret to the retirement from business of Mr. Yang, a well-known pawnbroker of the metropolis. In addition to the ordinary duties of his calling this individual appears to have studied chemistry, mechanical science, French, mineralogy, medicine, and other subjects of a similar kind. He owned gasworks, steam-engines, a complete pharmacopeia of drugs, photographic apparatus, and a geological cabinet. It is to be hoped that Mr. Yang has prospered in his business, because he has retired to his native province, Shansi, where he intends prosecuting enterprises for coal and iron mining, and other appliances of foreign machinery. When tastes of this kind extend to the shrewd and enterprising Chinese traders, we need not despair of the outlook for science in China.

SOME time since we alluded to the work done in China by an American female physician, Miss Dr. Howard. She has attended the mother of Li Hung Chang, the great Viceroy, and now we read she is treating the wife of the same high official. The fame of the lady doctor appears to have spread far and wide over North China, and she is now flooded with applications for assistance and advice from the women of wealthy families, who would die rather than be treated by a foreign male physician. It looks as if the various countries of the East offered an almost inexhaustible field for women possessing medical knowledge and skill.

THE Annual Report of the Glasgow Museum is as favourable as can be expected, considering the totally inadequate space allotted for the purpose in one of the wealthiest cities of the world.

PROF. H. CARRINGTON BOLTON has issued in a separate form his address on Chemical Literature, delivered before the American Association at Montreal last year.

FOR Baron Nordenskjöld's coming expedition to Greenland a flying-machine is now being constructed in Gothenburg. The apparatus, a kind of flying or air-sailing machine, is the invention of a Swedish engineer, Herr A. Montén, who is now constructing the same at the expense of Dr. Oscar Dickson.

ON the night of April 3, frequent and violent shocks of earthquake were felt at Pedara in Sicily.

THE additions to the Zoological Society's Gardens during the past week include a Leonine Monkey (*Macacus leoninus* ♂) from Arracan, presented by Mr. A. G. Henry; a Mule Deer (*Cervus macrotis* ♀) from North America, presented by Judge Caton, C.M.Z.S.; a Common Squirrel (*Sciurus vulgaris* ♀), British, presented by Miss A. M. Frost; a Common Pintail (*Dafila acuta* ♂), British, presented by Mr. Frank Seago; a Grey-lag Goose (*Anser ferus*), British, presented by Mr. Vincent W. Corbett; four Palmated Newts (*Triton palmipes*), British, presented by Mr. J. E. Kelsall; a Radiated Tortoise (*Testudo radiata*) from Madagascar, deposited; a Black Saki (*Pithecia satanas* ♀), a White-bellied Parrot (*Caica leucogastra*) from the Amazons, a Talapoin Monkey (*Cercopithecus talapoin* ♂), four Harlequin Quails (*Coturnix histrionica* ♂ ♂ ♀ ♀) from West Africa, a Brazilian Blue Grosbeak (*Guiraca caerulea*), four Saffron Finches (*Sycalis flaveola* ♂ ♂ ♀ ♀) from Brazil, purchased.

OUR ASTRONOMICAL COLUMN

D'ARREST'S COMET.—On April 4 a.m. this comet was re-observed by Dr. Hartwig with the 26-inch refractor of the Observatory of Strasburg, near the position indicated by the

elements of M. Leveau of Paris. The observation is a notable one, having been made at the great interval of 285 days from the date of perihelion passage; no other comet of short period has been hitherto observed under such circumstances, indeed there is only one instance upon record where a comet has been observed further from perihelion passage, and this was in the case of the celebrated comet of 1811, which was in perihelion on Sept. 12 in that year, and was followed by Wisniewsky till Aug. 17, 1812, or 309 days after its nearest approach to the sun. The great comet of 1861 was observed at Pulkowa 284 days after perihelion.

The comet in question was discovered by the late Prof. D'Arrest at Leipsic on June 27, 1851, and was observed at Berlin till October 6; its periodicity was pointed out by the same astronomer in the first week in August. MM. Oudemans and Schulze specially occupied themselves with the investigation of its orbit in this year. At the next return in 1857 its position did not allow of observations in this hemisphere, but it was observed at the Royal Observatory, Cape of Good Hope, on December 5, and followed until January 18, 1858. The ensuing perihelion passage took place at the end of February, 1864, but from the unfavourable track of the comet in the heavens no observations were procured. During this revolution the comet had approached the planet Jupiter within about 0.36 of the earth's mean distance from the sun, and large perturbations of the elements were thereby produced; the nearest approach occurred in April, 1861. At the returns in 1870 and 1877 observations sufficient for the correction of the elements were obtained; the later investigation of the comet's motion has been ably conducted by M. Leveau.

In 1851 at perihelion the comet was distant from the earth's orbit only 0.162; at the present time this distance has been increased by perturbation to 0.316. There is a very close approach to the orbit of Jupiter, in heliocentric longitude 154°, or at an angular distance of about 165° before perihelion. In the orbit of 1870 the distance was 0.0845, in that of 1884 it is 0.1232; the presumption will therefore be that the attraction of this planet has fixed the comet in the system.

The following positions are calculated from M. Leveau's predicted elements; the perihelion passage occurs 1884, January 13 5765 G.M.T. :—

At Greenwich Midnight

	R.A.			Decl.			Log. distance from	
	h.	m.	s.	°	'	"	Earth.	Sun.
April 23,	13	38	14	...	+ 11	13.7	0.2951	0.4649
25, "	"	36	25	...	"	12.6		
27, "	"	34	37	...	"	40.8	0.2927	0.4609
29, "	"	32	50	...	"	53.2		
May 1, "	"	31	3	...	12	4.7	0.2912	0.4569
3, "	"	29	18	...	12	15.3		
5, "	"	27	35	...	12	25.1	0.2906	0.4528
7, "	"	25	55	...	12	33.9		
9, "	"	24	18	...	+ 12	41.7	0.2908	0.4486

THE SOLAR ECLIPSE IN MAY.—On May 7, on the eastern coast of Australia, the sun will rise in a sea-horizon about the time of greatest eclipse. With favourable weather the observation will be a very interesting and unusual one, more particularly about Sydney, where the magnitude of the eclipse is greatest. It will be seen from the maps in our ephemerides that totality does not reach Australia, but at Sydney the sun will rise at 6h. 38m., within a quarter of an hour after the middle of the phenomenon, when the magnitude will be 0.95. In Queensland the magnitude diminishes to 0.75, and the sun will be in the horizon at greatest phase. At the former place, therefore, a narrow crescent emerging from the sea-horizon will constitute apparent sunrise.

PHYSICS IN RUSSIA DURING THE LAST TEN YEARS¹

THE Russian Physical Society was founded only ten years ago, and since its foundation it has become the centre of all researches in physics carried on in Russia, which were limited before to a few dissertations written by Russian Professors of Physics in German Universities, and to a few memoirs communicated to the Academy of Sciences. At present the

¹ Historical sketch of the work done by the Physical Society at the University of St. Petersburg during the last ten years by N. Hesehus in the *Journal of the Russian Chemical and Physical Society*, vol. xiv. fasc. ix.